WHAT IS CLAIMED IS:

1. A method for the production of a homogenous, shaped SiO_2 body of near net shape, wherein an at least bimodal dispersion of amorphous SiO_2 particles comprising a first population of amorphous SiO_2 particles of a first average particle size and a second population of amorphous SiO_2 particles having an average particle size less than the average particle size of said first population, are electrophoretically deposited from an aqueous dispersion on an electrically nonconductive membrane whose shape and geometry correspond to the shape and geometry of the SiO_2 body to be produced, wherein the membrane has an average pore size which is larger than the average particle size of the second population of amorphous SiO_2 particles.

2. The method of claim 1, wherein said electrically nonconductive membrane is positioned between two electrically conductive electrodes, an anode and a cathode, there being no direct electrical contact between the electrodes and the membrane, the space between the anode and the membrane being filled with a dispersion made up of water and amorphous SiO_2 particles, and the space between the membrane and the cathode being filled with a matching fluid, wherein the SiO_2 particles in the dispersion are separated from the dispersant (water) by applying an electrical potential difference between the anode and the cathode, and move away from the anode onto the electrically nonconductive membrane because of the electrophoretic driving force, and are deposited and compacted on the membrane, so that a wet shaped SiO_2 body having open pores is formed there, and this shaped body is subsequently detached from the membrane and dried, or is first dried and then detached from the membrane.

3. The method of claim 1, wherein the electrically nonconductive membrane is permeable to ions.

4. The method of claim 1, wherein the electrically nonconductive membrane has an open porosity of between 5 and 60 vol.%.

5. The method of claim 1, wherein the electrically nonconductive membrane has an open porosity of between 10 and 30 vol.%.

6. The method of claim 1, wherein the membrane has an average pore size greater than 100 nanometers and up to about 100 micrometers.

7. The method of claim 1, wherein the membrane has an average pore size greater than 100 nanometers and up to about 50 micrometers.

8. The method of claim 1, wherein the membrane has an average pore size greater than 100 nanometers and up to about 30 micrometers.

9. The method of claim 1, wherein the membrane has an electrical resistivity of more than 10^8 Ωm.

10. The method of claim 1, wherein the membrane has an electrical resistivity of more than 10^{10} Ωm.

11. The method of claim 1, wherein the membrane contains no free residues.

12. The method of claim 1, wherein the SiO_2 particles in the dispersion have a bimodal particle size distribution.

13. The method of claim 1, wherein the dispersant comprises water.

14. A body having open pores, prepared according to the method of claim 1, which comprises at least 64 vol.% SiO_2 particles, has a pore volume determined by means of mercury porosimetry of from 1 ml/g to 0.01 ml/g, which has pores with an average pore diameter of from 1 to 10 μm, which are stable when sintered at up to 1000°C, or which has pores with a bimodal pore diameter distribution, one pore diameter maximum being in the range of from 0.01 μm to

0.05 μm, and a second pore diameter maximum being in the range of from 1 μm to 5 μm.

15. A body having open pores, prepared according to the method of claim 1, which comprises at least 70 vol.% SiO_2 particles, and has a pore volume determined by means of mercury porosimetry of from 0.8 ml/g to 0.1 ml/g and which has pores with an average pore diameter of from 3 to 6 μm which are stable when sintered at up to 1000°C, or which has pores with a bimodal pore diameter distribution, one pore diameter maximum being in the range of from 0.018 μm to 0.0022 μm, and a second pore diameter maximum being in the range of from 1.8 μm to 2.2 μm.

16. A sintered shaped silica glass body prepared by sintering the shaped body of claim 14 which is substantially 100% amorphous, transparent, impermeable to gases and has a density of at least 2.15 g/cm^3.

17. A sintered shaped silica glass body prepared by sintering the shaped body of claim 14 which is substantially 100% amorphous, transparent, impermeable to gases and has a density of at least 2.2 g/cm^3.

18. The shaped silica glass body of claim 16, which has substantially no gas inclusions and optionally an OH group concentration $\leq$ 1 ppm.

19. The shaped silica glass body of claim 16, which has a proportion of atomic impurities, $\leq$ 300 ppm, preferably $\leq$ 100 ppm, more preferably $\leq$ 10 ppm and most preferably $\leq$ 1 ppm.

20. A silica glass crucible suitable for pulling a silicon single crystal, prepared by the method of claim 1.